



# 2013 Water Quality Report



Scottsdale's Water Resources staff is dedicated to providing you with safe, reliable drinking water each and every day of the year, whenever you need it. Our goal is to supply you with quality drinking water at an affordable price with outstanding service.

This commitment to quality is summarized in this annual report. The 2013 Water Quality Report is available to each customer to provide important information about your drinking water. The valuable information in this report includes where your water comes from, our water treatment processes, the many results of continuous testing and how we stack up to the federal standards.

We work closely with the U.S. Environmental Protection Agency (EPA), the Arizona Department of Environmental Quality (ADEQ) and Maricopa County Environmental Services to ensure we

## A Message from the EPA

To ensure the water from your tap is safe to drink, the EPA issues regulations limiting the amount of certain impurities allowed in drinking water and the water treatment process. You can expect all drinking water, including bottled water (which is regulated by the Food and Drug Administration,) to contain at least small amounts of some contaminants. It's important to know that the presence (or detection) of impurities does not necessarily indicate a health risk.

Scottsdale's drinking water sources include rivers, lakes, reservoirs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring materials and can pick up substances from human or animal activity. Possible contaminants may include:

- **Microbial contaminants** including viruses, bacteria and parasites, which may come from sewage treatment plants, septic systems, agricultural or livestock operations and wildlife.
- **Inorganic contaminants** such as minerals, salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
- **Pesticides and herbicides** that may come from a variety of sources such as agriculture, storm water runoff and residential uses.

are meeting or surpassing all drinking water standards and assuring you receive safe, quality drinking water 24 hours a day.

Water is a precious resource for any community, but even more so in our desert environment. While we work hard at ensuring that your water is safe, we also encourage all our citizens to use water wisely and conserve whenever possible. To that end, this report also includes additional information about our innovative water reclamation facilities as well as water conservation tips and advice.

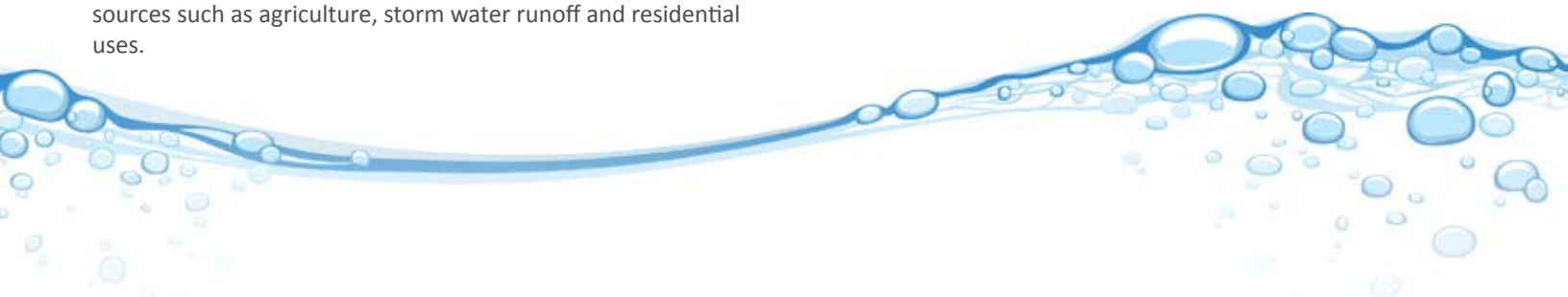
I encourage you take some time to review this report to learn how much work and dedication goes into your drinking water each and every day.

**Brian K. Biesemeyer**  
Water Resources Executive Director

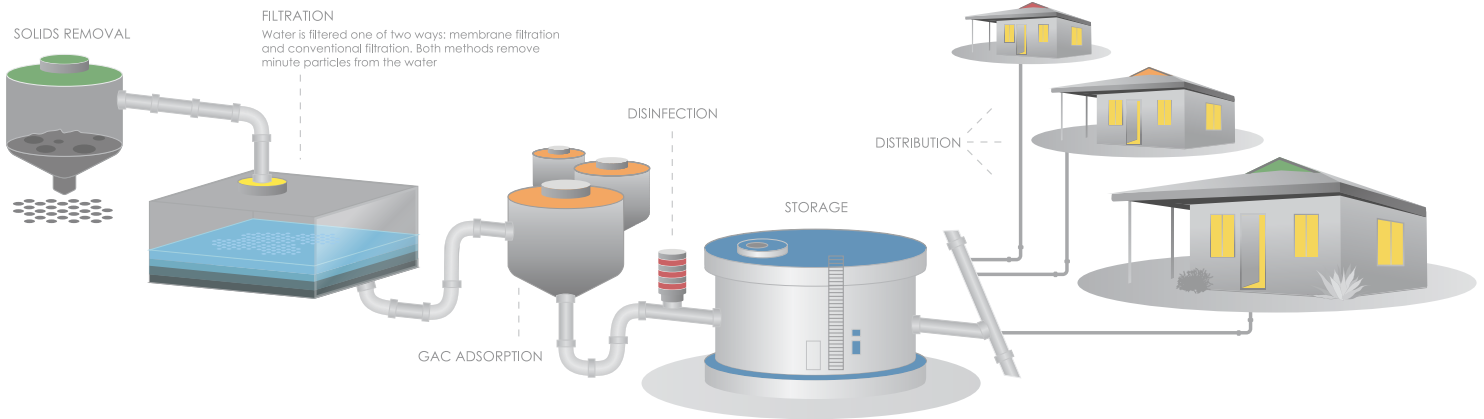
- **Organic chemical contaminants** including synthetic and volatile organic compounds, which are by-products of industrial processes and petroleum production, and also can come from gas stations, urban storm water runoff and septic systems.
- **Radiochemical contaminants**, which occur naturally or result from oil and gas production and mining activities.

### Attention Immuno-Compromised Citizens

If you are a person with a compromised immune system (i.e. undergoing chemotherapy, have had an organ transplant or if you have HIV/AIDS or other immune system disorders, etc.) you may be particularly at risk from infections and more vulnerable to contaminants in drinking water. Some elderly and infants may also have increased risk. You are encouraged to seek advice about drinking water from your health care provider. More information including ways to lessen the risk of infection from microbial contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).



## THE WATER TREATMENT PROCESS



## Scottsdale's Water Supply

Our water supply comes from both surface water and groundwater sources. Depending on the time of year, the weather and customer demand, it's possible you may receive water from a single source of water or a combination of water sources.

Scottsdale's main surface water supply is from the Colorado River. This water is transported through the Central Arizona Project (CAP) canal to the Scottsdale CAP Water Treatment Plant (WTP). We also receive surface water from Salt River Project (SRP) which comes from the Verde and Salt rivers. Water is transported by SRP to the Chaparral WTP.

Besides these two main surface water sources, your drinking water may also come from aquifers deep below ground. The water is pumped from the ground through one of the city's 24 active wells and then disinfected prior to entering the drinking water distribution system. The water from these wells may receive other forms of treatment prior to disinfection and distribution to you. Scottsdale also uses underground aquifers to store surface water, so some groundwater was actually surface water at one time.

As part of Scottsdale's water contingency plan, we can purchase small quantities of water from the city of Phoenix for service in the southern portion of the city. In 2012, Scottsdale purchased approximately 500,000 gallons of water from Phoenix. Water quality information for City of Phoenix water supply can be found by visiting [phoenix.gov/waterservices](http://phoenix.gov/waterservices).



## Central Groundwater Treatment Facility (CGTF)

In addition to the CAP and Chaparral surface water treatment plants, Scottsdale operates the Central Groundwater Treatment Facility (CGTF) to treat groundwater that comes from the North Indian Bend Wash (NIBW), an EPA designated superfund site. The CGTF facility located at Pima and Thomas roads was built by private companies that were deemed potentially responsible for contaminating the groundwater with Trichloroethylene (TCE). The private companies are responsible for the cost of operating and maintaining the facility. The groundwater is treated to levels better than federal and state drinking water standards, with regulatory oversight by EPA, ADEQ and Maricopa County. Water treated at the CGTF site makes up only a portion of Scottsdale's groundwater supply.

For more information on the NIBW Superfund site, please call EPA's message line (800-231-3075). For more information on the NIBW Central Groundwater Treatment Facility, please visit our water quality website at [scottsdaleaz.gov/water/superfund](http://scottsdaleaz.gov/water/superfund) or contact the City of Scottsdale at 480-312-8732.

How does the NIBW Central Groundwater Treatment Facility work?

- Water is pumped from the wells and passed through one of three treatment columns.
- The columns "strip" the water of contaminants by mixing the water with air. As the water and air mix, the contaminants transfer into the air.
- The air used during this treatment process is passed through activated carbon filters to remove the TCE before being released.
- "Stripped" water is then disinfected with chlorine in a water storage reservoir and distributed to customers. The water in the reservoir is combined with other treated water source(s) to meet customer demand.

## 2012 Results

Scottsdale is required to test for an assortment of contaminants at various locations throughout the city. Testing is done at ten entry points to the distribution system (EPDS) that represent the treated source water. We also perform tests throughout the distribution system at 150 different locations to ensure the water entering your home or business remains safe and reliable.

We test for over 100 substances but only the substances detected in the water during testing are listed in this report. The results shown are from the most recent testing performed (calendar year 2011 or 2012) unless otherwise noted.

A few substances are discussed in detail below. If you would like more information about other substances or a complete list of all testing, please contact us at 480-312-8732. You can also find detailed information on the EPA's website – [water.epa.gov/drink/contaminants](http://water.epa.gov/drink/contaminants).

*Arsenic* is a naturally occurring mineral commonly found in water due to leaching from rocks and soil. The maximum contaminant level (MCL) for arsenic allowed in drinking water is 10 ppb (parts per billion), based on a running annual average.

### IMPORTANT DEFINITIONS AND ABBREVIATIONS

**Contaminant** – Any physical, chemical, biological or radiological substance or matter in the water.

**Maximum Contaminant Level Goal (MCLG)** – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**Maximum Contaminant Level (MCL)** – The highest level of a contaminant allowed by the EPA in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology.

**Maximum Residual Disinfectant Level (MRDL)** – The highest level of a disinfectant (chlorine) allowed in drinking water. There is convincing scientific evidence that the addition of a disinfectant is required for the control of microbial contaminants.

**Maximum Residual Disinfectant Level Goal (MRDLG)** – The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contamination.

**Treatment Technique (TT)** – A required process intended to reduce the level of a contaminant in drinking water.

**Action Level (AL)** – The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements that a water provider must follow.

**Part per million (ppm) / Part per billion (ppb)** – Equivalent to mg/L and ug/L respectively, describe the levels of detected substances. One ppm is approximately equal to one drop of food coloring in 13 gallons of water. One ppb is approximately equal to one drop of water in a small backyard swimming pool (13,000 gallons).

**Picocuries per liter (pCi/L)** – A measure of the radioactivity of a substance.

**Non-Detectable (ND)** – The substance was analyzed but not detected.

**Not Applicable (NA)** – A regulatory limit does not exist.

While your drinking water meets or surpasses EPA's standard for arsenic, it does contain low levels of arsenic. EPA is continually researching the health effects of low levels of arsenic, which has been known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. In 2012, the highest level of arsenic measured in a single sample in Scottsdale's drinking water was 9.6 ppb.

*Nitrate* is an inorganic substance that is monitored due to run off from fertilizer use. Nitrate in drinking water at levels greater than 10 ppm (parts per million) is considered a health risk for infants younger than six months of age. (Nitrate levels above 10 ppm in drinking water can cause blue baby syndrome.) Nitrate levels in surface water supplies may rise quickly for short periods of time due to rainfall or agricultural activity. If you are caring for an infant you should seek advice from your health care provider. In 2012, the highest nitrate level detected in Scottsdale's drinking water was 5.2 ppm, which is almost 50% below the MCL set by the EPA.

*Turbidity* is a measure of clarity in the water and is reported as Nephelometric Turbidity Units (NTU). Turbidity is caused by a variety of substances including sand, dirt and algae. Water is measured for turbidity to determine the effectiveness of the water treatment process. Scottsdale measures turbidity continuously at its surface water treatment plants.

*Microbiological Testing* is performed monthly at over 150 sites within the distribution system for Total Coliform and E.Coli bacteria in order to verify the integrity of the distribution system as well as our water sources.

*Chlorine* is used as a disinfectant to ensure the treated water remains safe at all times. We continually monitor Chlorine levels throughout the system to ensure that safe

and adequate levels are maintained at all times. Scottsdale's goal is to have a chlorine residual between 0.5 and 1.2 parts per million (ppm) in our drinking water system.

Byproducts of using chlorine as a disinfectant are Trihalomethanes and Haloacetic Acids. These are formed as a result of a chemical reaction between chlorine and naturally occurring organic matter in the water. To minimize the formation of these disinfection byproducts (DBPs), granular activated carbon (GAC) is used during the water treatment process to reduce levels of organic matter and subsequently reduce DBP levels. Some individuals who drink water containing excess amounts of DBPs over many years may experience problems with their liver, kidneys or central nervous systems and increase their risk of cancer.

## 2012 Results - Treated Source Water

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Arsenic	ppb	10	0	ND	9.6	6.7	Leaching of natural deposits
Barium <sup>3</sup>	ppb	2,000	2,000	8.7	127	65.2	Leaching of natural deposits
Chromium <sup>3</sup>	ppb	100	100	ND	37.9	6.3	Leaching of natural deposits
Fluoride <sup>3</sup>	ppm	4	4	0.3	1.0	0.4	Leaching of natural deposits
Nitrate	ppm	10	10	ND	5.2	4.6	Leaching of natural deposits and septic systems; Runoff from fertilizer use
Nickel <sup>3</sup>	ppb	N/A	N/A	ND	2.8	1.3	Leaching of natural deposits
Selenium <sup>3</sup>	ppb	50	50	ND	1.9	1.1	Leaching of natural deposits; Discharge from petroleum refineries and mining
Dichloromethane	ppb	5	0	ND	1.0	0.6	Leaches from paint and paint products
Alpha Emitters <sup>3</sup>	pCi/L	15	0	1.7	9.6	3.9	Leaching of natural deposits
Uranium <sup>3</sup>	ppb	30	0	ND	6.2	2.5	Leaching of natural deposits
Total Organic Carbon	ppm	TT	N/A	0.9	2.2	1.9	Naturally present in the environment
Substance	Unit	MCL	TT Requirement	Highest Measurement	Treatment Technique Comparison		Likely Source in Drinking Water
Turbidity	NTU	1	95% less than 0.3 NTU	0.22	100 % less than 0.3 NTU		Soil Runoff

## 2012 Results - Distribution System

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
Total Coliform	%	5 (monthly)	0	0	0	0	Naturally present in the environment
Chlorine	ppm	4 (MRDL)	4 (MRDLG)	0.14	2.3	0.94	Water additive used to control microbial growth
Total Trihalomethanes (TTHMs) <sup>1</sup>	ppb	80 (annual average)	N/A	6.4	102	51.7	Byproduct of drinking water disinfection
Haloacetic Acids (HAAs) <sup>1</sup>	ppb	60	N/A	ND	27.6	13.3	Byproduct of drinking water disinfection
Substance	Unit	AL	MCLG	90th Percentile Value	# Homes Greater than AL	Levels in Treated Water	Likely Source in Drinking Water
Lead <sup>2,3</sup>	ppb	15	0	2.0	1 out of 50	ND - 2.1	Corrosion of household plumbing
Copper <sup>2,3</sup>	ppb	1300	N/A	313	0 out of 50	ND - 13.3	Corrosion of household plumbing

## 2010 Results for Unregulated Contaminant Monitoring Rule (UCMR2)

Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected	Average	Likely Source in Drinking Water
N-Nitroso-dimethylamine (NDMA)	ppb	N/A	N/A	ND	0.0042	ND	Byproduct of drinking water disinfection

1: Compliance is based on a system wide average, not the highest detected amount.

2: Lead and Copper Rule Standard: 90% of homes tested must have lead and copper levels below the alert level (AL).

3: Values reported include testing results from 2011 and 2012 (most recent testing performed).

*Lead and copper* are typically found in drinking water because of materials and components found in service lines and home plumbing. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Scottsdale is committed to providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (800-426-4791) or at [epa.gov/safewater/lead](http://epa.gov/safewater/lead).

The most recent testing for lead and copper was performed in 2011. Lead and copper levels reported in the table are from water faucets inside 50 Scottsdale homes that were built before the lead ban. Results from one home exceeded the 15 ppb action level for lead. The homeowner was contacted by city staff to discuss how to minimize lead exposure from drinking water.

## Additional Information

The following substances are not regulated by the EPA but may be of special interest to water customers.

*Cryptosporidium* is a pathogen found in surface water throughout the United States and can be spread through other methods besides drinking water. Ingestion may cause a gastrointestinal illness. During voluntary, periodic monitoring conducted in 2012, cryptosporidium was not detected in our source waters. If present, this organism is removed during treatment through the use of multi-media filtration.

*Perchlorate* is used as a component of rocket fuel munitions and in the fireworks industry. The EPA does not currently require monitoring of perchlorate in drinking water, but has set an interim health advisory level of 15 ppb. Arizona's guidance level is 14 ppb. Scottsdale has elected to monitor our CAP water for perchlorate. In 2012, the highest level of perchlorate detected in Scottsdale source water was 1.2 ppb.

2012 Results - Treated Source Water					
Substance	Unit	MCL	MCLG	Lowest Amount Detected	Highest Amount Detected
Alkalinity	ppm	NA	NA	120	244
Aluminum	ppm	NA	NA	ND	0.22
Calcium	ppm	NA	NA	34	106
Chloride	ppm	NA	NA	29	286
Iron	ppm	NA	NA	ND	0.84
Magnesium	ppm	NA	NA	13	62
Manganese	ppm	NA	NA	ND	0.12
pH	Std. Unit	NA	NA	7.0	8.3
Sodium	ppm	NA	NA	22	152
Sulfate	ppm	NA	NA	ND	227
Temperature	°C	NA	NA	15	35
	°F	NA	NA	59	95
Total Dissolved Solids	ppm	NA	NA	280	898
Zinc	ppm	NA	NA	ND	0.068

Values reported include testing results for 2011 and 2012 (most recent testing performed).

## Water Hardness

As water makes its way to our treatment plants or through the aquifer, it picks up naturally occurring minerals that make the water "hard" and can also affect taste and other aesthetic characteristics. Scottsdale is committed to providing you with the cleanest and safest drinking water possible, at an affordable price. Scottsdale has considered implementing additional treatment processes to address hardness and/or taste, but concluded this additional treatment is not cost effective, especially considering outdoor usage. There are varying levels of water hardness throughout Scottsdale. Approximate hardness levels are shown in the table below.

Approximate Hardness Levels		
Boundary	Hardness (Grains per Gallon)	Hardness (mg/L or ppm)
South of Indian School Road	20 - 22	340 - 380
Indian School Road to Chaparral Road	16 - 18	270 - 310
Chaparral Road to McCormick Pkwy	13 - 15	220 - 260
North of McCormick Pkwy	15 - 17.5	250 - 300

## Source Water Assessment Program (SWAP)

In 2004, Scottsdale worked with the Arizona Department of Environmental Quality to finalize an assessment on the wells and surface water sources we use to provide you with drinking water. This assessment looked at potential risks to our water sources which include gas stations, landfills, dry cleaners, agricultural fields and wastewater treatment plants.

The assessment concluded that most of Scottsdale's groundwater wells have low to medium risk, with the exception of the wells linked to the Central Groundwater Treatment Facility. The water produced by these wells has a high risk of contamination, but is treated to meet or surpass drinking water standards and monitored closely by the city, ADEQ and the EPA.

All surface water sources are considered high risk due to their exposure to open air. These risks are addressed by the EPA through its increased monitoring requirements for surface water sources.

The complete assessment is available to review at [azdeq.gov/environ/water/dw/swap.html](http://azdeq.gov/environ/water/dw/swap.html) or can be obtained by calling the City of Scottsdale Water Resources Department at 480-312-8732.

## What's New?

In 2012, numerous efforts were completed to ensure our water supply meets your needs now and in the future. We continually strive to improve overall operations and ensure safety and quality to you and your family. Scottsdale has recently focused on security enhancements and operational efficiencies at all facilities and is the industry leader in the use of highly treated reclaimed water for golf course irrigation. Highlights from 2012 include:

### Water Reclamation

- Approximately 5 million gallons a day of recycled water from the Water Campus and Gainey Ranch Water Reclamation Plants helped the city meet irrigation demands for 23 golf courses. Renewable CAP raw surface water supplies supplemented recycled water to irrigate the golf courses along with two city recreation facilities.

### Water Treatment Plants

- Inherently Safer Technology: Completed construction of new On-site Generation Systems (OSG's) at our Central Arizona Project water treatment plant, eliminating the use of potentially hazardous gaseous chlorine in the treatment process.
- Partnered with the cities of Phoenix and Glendale to encourage private industry to design and construct a Granular Activated Carbon (GAC) reactivation facility that will initially reduce Scottsdale's GAC expenditures by approximately forty percent.

### Groundwater Sustainability

- Achieved Safe Yield (pumping less ground water than recharged) in 2012 for the seventh consecutive year by recharging 5,549 acre feet of water into the aquifer despite severe limitations imposed at the Water Campus recharge facility due to construction.
- Partnered with Motorola Solutions to build a new Granular Activated Carbon treatment facility to treat well PCX-1 water from the North Indian Bend Wash Superfund site, designated by the U.S. Environmental Protection Agency. When complete, the facility, which is owned by Motorola Solutions, will be operated by the city and receive the water at the Chaparral Water Treatment plant for use in the city's drinking water system.



## Water Conservation

Conserving water in Scottsdale is a top priority in protecting our most valuable resource. Historically, Scottsdale's average residential water use is higher than most other cities in the valley. To help reduce our high water usage, our Water Conservation Office offers numerous programs designed to help you become more water efficient at your home or business. Remember, the less water you use, the more money you'll save now and in the future. Plus, you're helping us ensure a sustainable water supply. You can always find information on water conservation at [scottsdaleaz.gov/water/conservation](http://scottsdaleaz.gov/water/conservation).

Some of our programs include:



### LANDSCAPE WORKSHOPS

Free low-water-use classes are offered twice a year on landscape design and maintenance, plant selection and water efficient irrigation.



### REBATES

Several incentives encourage you to install water efficient plumbing fixtures and/or low-water-use landscaping. Certain limitations and qualifications apply.



### RESIDENTIAL WATER AUDITS

Free, one-time outdoor irrigation audits are offered to single-family residential homes.



### FREE PUBLICATIONS

A variety of low-water-use landscaping resources are available online. Copies can also be mailed by request.

### WATER – USE IT WISELY

We're an active partner with other Valley cities in this awareness campaign that promotes easy things you can do to save water every day. Visit [wateruseitwisely.com/arizona](http://wateruseitwisely.com/arizona).

### WATERSENSE

This EPA-sponsored program helps you identify water efficient toilets, faucets and other plumbing fixtures that use less water but perform just as well, if not better than similar products.

Visit [epa.gov/watersense](http://epa.gov/watersense) and look for the WaterSense label next time you shop for new fixtures.

### XERISCAPE GARDEN AT CHAPARRAL PARK

One of Scottsdale's hidden treasures, the Xeriscape Garden is a place to enjoy the natural beauty of the desert and learn how to bring this splendor to your yard. Nestled on five and a half acres behind the dog park at Chaparral Park, Scottsdale's Xeriscape Garden has over 7,000 plants that exemplify the beauty of the desert while requiring very little water.

## Design Landscapes with Arizona in Mind

When it's time to create a low-water-use, desert friendly landscape at your home, use these tips to save both water, energy and money.

- Use dirt mounds and/or depressions to direct rain water to your plants
- Choose native plants that require less water
- Plant evergreen trees on the west and trees that drop leaves on the east side of your house to maximize shade and energy savings
- Locate new plants where they have room to grow and mature without the need for constant pruning
- Consider not overseeding for a winter lawn and save a lot of money, time and effort

## More Information on City of Scottsdale Water Resources Division

### WATER QUALITY

480-312-8732

[scottsdaleaz.gov/water/quality](http://scottsdaleaz.gov/water/quality)

### REPORT A WATER MAIN BREAK

480-312-5650

Water-related topics may be discussed at City Council meetings or other public forums and we welcome your attendance. Meeting notices and City Council agendas are posted on the city's website at [scottsdaleaz.gov/council/meeting\\_index/Agendas](http://scottsdaleaz.gov/council/meeting_index/Agendas)

U.S. EPA's Safe Drinking Water Hotline

800-426-4791, [epa.gov/safewater](http://epa.gov/safewater)

### WATER CONSERVATION

480-312-5650

### CUSTOMER SERVICE

480-312-5650

Arizona Department of Environmental Quality

602-771-2300, [azdeq.gov/environ/water/dw/index.html](http://azdeq.gov/environ/water/dw/index.html)

Maricopa County Environmental Services Department

602-506-6666, [maricopa.gov/EnvSvc/WaterWaste](http://maricopa.gov/EnvSvc/WaterWaste)

### TAP INTO QUALITY

[tapintoquality.com](http://tapintoquality.com)

### ONLY TAP WATER DELIVERS

[drinktap.org](http://drinktap.org)

### WATER USE IT WISELY

[wateruseitwisely.com/arizona](http://wateruseitwisely.com/arizona)

### WATER SENSE

[epa.gov/watersense](http://epa.gov/watersense)

Este informe contiene informacion muy importante sobre su agua potable. Si desea una copia de este informe en español o tiene alguna pregunta sobre el, por favor llame a (480) 312-8711.